

CLAIMS

1. A liquid crystal display device comprising:

a gate electrode formed on an insulating surface;

a semiconductor film formed on the gate electrode sandwiching an insulating film;

5 a source region and a drain region formed on the semiconductor film;

a barrier film formed so as to cover at least portions of ends of the source electrode formed on the source region, a drain electrode formed on the drain region, and the source electrode and the drain electrode; and

a pixel electrode formed so as to cover the drain electrode and the barrier film,

10 wherein at least a portion of an end surface of the source region approximately corresponds to an end surface of the semiconductor film and an end surface of the source electrode; and

wherein at least a portion of an end surface of the drain region approximately corresponds to an end surface of the semiconductor film and an end surface of the drain electrode.

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2. A liquid crystal display device comprising:

a gate electrode formed on an insulating surface;

a semiconductor film formed on the gate electrode sandwiching an insulating film;

20 a source region and a drain region formed on the semiconductor film;

a barrier film formed so as to cover at least portions of ends of the source electrode formed on the source region, a drain electrode formed on the drain region, and the source electrode and the drain electrode; and

a pixel electrode formed so as to cover the drain electrode and the barrier film,

25 wherein one end surface of the drain region approximately corresponds to an end surface of the semiconductor film and an end surface of the drain electrode and the other end surface approximately corresponds to an end surface of the pixel electrode and the other end surface of the drain electrode.

30 3. The liquid crystal display device according to claim 1,

wherein the pixel electrode is formed of a light-transmitting conductive film.

4. The liquid crystal display device according to claim 2,
wherein the pixel electrode is formed of a light-transmitting conductive film.

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5. The liquid crystal display device according to claim 1,
wherein the pixel electrode is formed of a conductive film containing Ag (silver), Au (gold), Cu (copper), W (tungsten), and Al (aluminum) as its main component, or a lamination thereof.

10 6. The liquid crystal display device according to claim 2,
wherein the pixel electrode is formed of a conductive film containing Ag (silver), Au (gold), Cu (copper), W (tungsten), and Al (aluminum) as its main component, or a lamination thereof.

15 7. The liquid crystal display device according to claim 1,
wherein the semiconductor film is a semi-amorphous semiconductor containing hydrogen and halogen element, and a crystalline structure.

20 8. The liquid crystal display device according to claim 2,
wherein the semiconductor film is a semi-amorphous semiconductor containing hydrogen and halogen element, and a crystalline structure.

9. A method for manufacturing a liquid crystal display device comprising:
forming a gate electrode by selectively ejecting composition on an insulating surface;
25 forming an insulating film so as to cover the gate electrode;
forming a first semiconductor film on the insulating film;
forming a second semiconductor film containing an impurity element which imparts N-type or P-type on the first semiconductor film;
forming a first conductive film on the second semiconductor film;
30 forming a pattern of laminated films of the first semiconductor film, the second

semiconductor film and the first conductive film by selectively removing the first semiconductor film, the second semiconductor film and the first conductive film by using a first mask;

forming a second conductive film so as to cover the laminated films; and

forming a source region and a drain region formed of the second semiconductor film, a

5 source electrode and a drain electrode formed of the first conductive film, and a pixel electrode formed of the second conductive film by selectively removing a portion of the first semiconductor film, the second semiconductor film, the first conductive film and the second conductive film.

10 10. A method for manufacturing a liquid crystal display device comprising:

forming a gate electrode by selectively ejecting composition on an insulating surface;

forming an insulating film so as to cover the gate electrode;

forming a first semiconductor film on the insulating film;

forming a second semiconductor film containing an impurity element which imparts

15 N-type or P-type on the first semiconductor film;

forming a first conductive film on the second semiconductor film;

forming a pattern of laminated films of the first semiconductor film, the second semiconductor film and the first conductive film by selectively removing the first semiconductor film, the second semiconductor film and the first conductive film by using a first mask;

20 forming a barrier film by selectively ejecting composition on an end surface of the laminated films;

forming a second conductive film so as to cover the laminated films and the barrier film;

and

forming a source region and a drain region formed of the second semiconductor film, a

25 source electrode and a drain electrode formed of the first conductive film, and a pixel electrode formed of the second conductive film by selectively removing a portion of the first semiconductor film, the second semiconductor film, the first conductive film and the second conductive film.

30 11. The method for manufacturing a liquid crystal display device according to claim 9;

wherein the insulating film, the first semiconductor film, the second semiconductor film and the first conductive film are formed sequentially without being exposed to atmosphere.

12. The method for manufacturing a liquid crystal display device according to claim 10;
5 wherein the insulating film, the first semiconductor film, the second semiconductor film and the first conductive film are formed sequentially without being exposed to atmosphere.

13. A method for manufacturing a liquid crystal display device according to claim 9,
10 wherein the first mask and the second mask are formed by selectively ejecting composition.

14. A method for manufacturing a liquid crystal display device according to claim 10,
15 wherein the first mask and the second mask are formed by selectively ejecting composition.

15. The method for manufacturing a liquid crystal display device according to claim 9,
wherein the second conductive film is formed by selectively ejecting composition.

16. The method for manufacturing a liquid crystal display device according to claim 10,
20 wherein the second conductive film is formed by selectively ejecting composition.

17. A method for manufacturing a liquid crystal display device comprising:
forming a gate electrode by selectively ejecting composition on an insulating surface;
forming an insulating film so as to cover the gate electrode;
25 forming a first semiconductor film on the insulating film;
forming a second semiconductor film containing an impurity element which imparts
N-type or P-type on the first semiconductor film;
forming a first conductive film on the second semiconductor film;
forming a pattern of laminated films of the first semiconductor film, the second
30 semiconductor film and the first conductive film by selectively removing the first semiconductor

film, the second semiconductor film and the first conductive film by using a first mask; and

forming a source region and a drain region formed of the second semiconductor film, a source electrode and a drain electrode formed of the first conductive film, and a pixel electrode formed of the second conductive film by selectively removing a portion of the first
5 semiconductor film, the second semiconductor film, the first conductive film and the second conductive film by using a mask.